

A2 CC-1 Quarter 1 Test 2 Review Key

$$1) \frac{20x^{-3}y^5}{4x^{-2}y^4} = \boxed{\frac{5y}{x}}$$

$$2) (2c^{\frac{1}{2}}d)(c^{\frac{3}{2}}d^{-1}) = 2c^{\frac{4}{2}}d^0 = \boxed{2c^2}$$

$$3) (12a^{\frac{1}{5}})^0 = \boxed{1} \text{ Anything to a zero power } = 1$$

$$4) \frac{(2a^2b^4)^2}{2a^3b^{-5}} = \frac{(2^2(a^2)^2(b^4)^2)}{2a^3b^{-5}} = \frac{4a^4b^8}{2a^3b^{-5}} = \boxed{2ab^{13}}$$

$$5) \sqrt{36x^7y^{11}}$$

$$\sqrt{36x^6y^{10}} \sqrt{xy}$$

$$\downarrow$$

$$\boxed{6x^3y^5\sqrt{xy}}$$

$$6) (5c^{-3}d^{-6}e^2)(2c^{-4}d^{-2}e^{-2}) = 10c^{-7}d^{-8}e^0 = \boxed{\frac{10}{c^7d^8}}$$

$$7) (3a^2b^4)^3(2a^{-4}b)^{-1} = (3^3(a^2)^3(b^4)^3)(2^{-1}a^4b^{-1}) =$$

$$(27a^6b^{12})(\frac{1}{2}a^4b^{-1}) = \frac{27}{2}a^{10}b^{11}$$

$$\boxed{\frac{9a^{10}b^{11}}{2}}$$

Need
like
radicals

$$9) \sqrt{90} + \sqrt{40}$$

$$\sqrt{9}\sqrt{10} + \sqrt{4}\sqrt{10}$$

$$3\sqrt{10} + 2\sqrt{10}$$

$$\boxed{5\sqrt{10}}$$

$$10) \sqrt{98} - 2\sqrt{18}$$

$$\sqrt{49}\sqrt{2} - 2\sqrt{9}\sqrt{2}$$

$$7\sqrt{2} - 2 \cdot 3\sqrt{2}$$

$$7\sqrt{2} - 6\sqrt{2}$$

$$\boxed{\sqrt{2}}$$

Outside with outside
Inside with inside

$$11) \frac{2\sqrt{5} \cdot \sqrt{15}}{2\sqrt{75}}$$

$$\frac{2\sqrt{25}\sqrt{3}}{2 \cdot 5\sqrt{3}}$$

$$\boxed{10\sqrt{3}}$$

$$12) \frac{6\sqrt{60}}{24\sqrt{3}} = \frac{1\sqrt{20}}{4} = \frac{\sqrt{4}\sqrt{5}}{4} = \frac{2\sqrt{5}}{4} = \boxed{\frac{\sqrt{5}}{2}}$$

$$13) \sqrt{3}(2\sqrt{27} - \sqrt{6})$$

$$\frac{2\sqrt{81} - \sqrt{18}}{2 \cdot 9 - \sqrt{9}\sqrt{2}}$$

$$\boxed{18 - 3\sqrt{2}}$$

FOIL

$$14) (2+\sqrt{5})(3-\sqrt{5})$$

$$6 - 2\sqrt{5} + 3\sqrt{5} - \sqrt{25}$$

$$6 - 2\sqrt{5} + 3\sqrt{5} - 5$$

$$\frac{1 + 1\sqrt{5}}{1 + \sqrt{5}}$$

$$15) \frac{3}{5}\sqrt{75a^4b^6c} - \frac{1}{2}\sqrt{192a^4b^6c}$$

$$\frac{3}{5} \cdot \sqrt{25a^4b^6} \sqrt{3c} - \frac{1}{2} \cdot \sqrt{64a^4b^6} \sqrt{3c}$$

$$\frac{3}{5} \cdot 5a^2b^3\sqrt{3c} - \frac{1}{2} \cdot 8a^2b^3\sqrt{3c}$$

$$3a^2b^3\sqrt{3c} - 4a^2b^3\sqrt{3c}$$

$$\boxed{-1a^2b^3\sqrt{3c}}$$

$$16) 3\sqrt{4a^3} - 6\sqrt{9a^3}$$

$$3\sqrt{4a^2}\sqrt{a} - 6\sqrt{9a^2}\sqrt{a}$$

$$3 \cdot 2a\sqrt{a} - 6 \cdot 3a\sqrt{a}$$

$$6a\sqrt{a} - 18a\sqrt{a}$$

$$\boxed{-12a\sqrt{a}}$$

$$17) 3a^2b^3(4a^3b - 3a^2b^2 + 5ab^3)$$

$$\boxed{12a^5b^4 - 9a^4b^5 + 15a^3b^6}$$

$$18) (7y+2)(7y-2)$$

$$49y^2 - 14y + 14y - 4$$

$$\boxed{49y^2 - 4}$$

$$19) (7x-2)(5x+8)$$

$$35x^2 + 56x - 10x - 16$$

$$\boxed{35x^2 + 46x - 16}$$

$$20) \begin{array}{ccc} 3x^2 & + & x & - & 4 \\ \hline 6x^3 & 2x^2 & -8x & 2x \\ -15x^2 & -5x & +20 & -5 \\ \hline \end{array}$$

$-13x^2 \quad -13x \quad +20$

$$\boxed{6x^3 - 13x^2 - 13x + 20}$$

$$21) \frac{\sqrt{2a^3b}}{\sqrt{6a}} = \sqrt{\frac{2a^3b}{6a}} = \sqrt{\frac{a^2b}{3}} = \frac{\sqrt{a^2b}}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3a^2b}}{\sqrt{9}} = \boxed{\frac{a\sqrt{3b}}{3}}$$

↑
rationalize

$$22) (2\sqrt{6} + \sqrt{5})^2 = (2\sqrt{6} + \sqrt{5})(2\sqrt{6} + \sqrt{5})$$

$$4\sqrt{36} + 10\sqrt{6} + 10\sqrt{6} + 25$$

$$4 \cdot 6 + 10\sqrt{6} + 10\sqrt{6} + 25$$

$$24 + 20\sqrt{6} + 25$$

$$\boxed{49 + 20\sqrt{6}}$$

$$23) \frac{8\sqrt{20x^8} - 4\sqrt{10x^3}}{2\sqrt{5x}} \cdot \frac{\sqrt{5x}}{\sqrt{5x}} = \frac{8\sqrt{100x^9} - 4\sqrt{50x^4}}{2\sqrt{25x^2}} = \frac{8\sqrt{100x^9} - 4\sqrt{50x^4}}{2 \cdot 5x}$$

$$= \frac{8\sqrt{100x^8}\sqrt{x} - 4\sqrt{25x^4}\sqrt{2}}{10x} = \frac{8 \cdot 10x^4\sqrt{x} - 4 \cdot 5x^2\sqrt{2}}{10x}$$

$$= \frac{80x^4\sqrt{x} - 20x^2\sqrt{2}}{10x} = \boxed{8x^3\sqrt{x} - 2x\sqrt{2}}$$

Take
out
10x
from all

$$24) \quad 4(x+4) = x+2(x+11)$$

$$4x+16 = x+2x+22$$

$$4x+16 = 3x+22$$

$$\begin{array}{r} -3x \quad -3x \\ \hline \end{array}$$

$$x+16 = 22$$

$$\begin{array}{r} -16 \quad -16 \\ \hline \end{array}$$

$$\boxed{x = 6}$$

$$25) \quad 3x-7 = 2-(2x+6)$$

$$3x-7 = 2-2x-6$$

$$3x-7 = -4-2x$$

$$\begin{array}{r} +2x \quad +2x \\ \hline \end{array}$$

$$5x-7 = -4$$

$$\begin{array}{r} +7 \quad +7 \\ \hline \end{array}$$

$$\frac{5x}{5} = \frac{3}{5}$$

$$\boxed{x = \frac{3}{5}}$$

$$26) \quad 14+3(x+2) = 3+2(x+9)$$

$$14+3x+6 = 3+2x+18$$

$$20+3x = 21+2x$$

$$\begin{array}{r} -2x \quad -2x \\ \hline \end{array}$$

$$20+x = 21$$

$$\begin{array}{r} -20 \quad -20 \\ \hline \end{array}$$

$$\boxed{x = 1}$$